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Conference Abstract

Basal and $PGF_{2\alpha}$-stimulated secretion of pro-inflammatory cytokines from 3T3-L1 adipocyte-like cells

Bilyana Ilieva‡, Elena Marinova§, Hristo Gagov|, Rossitza Konakchieva‡

‡ 1 Sofia University St. Kliment Ohridski, Faculty of Biology, Sofia, Bulgaria
§ MC ReproBioMed Ltd, Sofia, Bulgaria
| Sofia University St. Kliment Ohridski, Faculty of Biology, Sofia, Bulgaria

Corresponding author: Bilyana Ilieva (bmilieva@gmail.com)

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Abstract

Adipocytes were recently identified as an important source of endocrine and paracrine mediators, regulating the metabolism and activity of various cell types and body functions. 3T3-L1 preadipocytes are useful model for physiological, pharmacological and cell signaling studies. Differentiation of 3T3-L1 murine fibroblasts into adipocyte-like cells was conducted in presence of IBMX, dexamethasone and insulin and demonstrated by Oil Red O staining of accumulated lipid droplets. Using Inflammatory Multi- Analyte Cytokines ELISArray Kit we investigated the release of cytokines under basal conditions, after $PGF_{2\alpha}$ treatment for 24 hours to induce pro-inflammatory phenotype, and after $PGF_{2\alpha}$ treatment and incubation in the presence of L-C-Propargylglycine (PGG, 1 mmol/l), a selective inhibitor of cystathionine-gamma-lyase (CSE). The last combination was used to explore the role of H_2S, released from CSE, for cytokine and H_2O_2 release. We found that $PGF_{2\alpha}$ strongly increased TNF_{α} secretion from differentiated adipocytes, the latter effect being antagonized by PGG. The CSE inhibitor enhanced IL-6 production and suppressed IL-10 secretion. PGG enhanced H_2O_2 production of in $PGF_{2\alpha}$-treated cells. It is concluded that pro-inflammatory phenotype of differentiated 3T3-L1 adipocyte-like cells, induced by PGF

$_{2\alpha}$ is characterized by enhanced TNF_{α} production which critically depends on the ability of CSE to produce H_2S.

Keywords

adipocytes, paracrine mediators, inflammation, hydrogen sulfide, cystathionine-gamma-lyase (CSE)

Presenting author

Bilyana Ilieva

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Conflicts of interest

No